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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Oggioni *et al.*

Examiner: Graybill, David E.

Serial No.: 09/638,729

Art Unit: 2827

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For: **BALL GRID ARRAY MODULE**

Commissioner for Patents
Washington, D.C. 20231

Sir:

This paper is being filed in response to the Office Action mailed August 30, 2002.

Applicants respectfully request that the above-identified application be reconsidered in view of the Amendments and Remarks that follow, that each of the presently pending claims be allowed, and that the application be passed to issue.

Amendment

IN THE CLAIMS:

The following claims 1, 3-8, and 12 are currently pending:

1. (ONCE AMENDED) An electronic package comprising:

a metal member;

a dielectric layer positioned on said metal member, wherein said dielectric layer

comprises a photo-imageable dielectric material;

an active element positioned on said dielectric layer;

a first plurality of electrically conductive members positioned on said dielectric layer relative to said active element;

a plurality of metallic traces on said dielectric layer, selected ones of said metallic traces in electrical contact with said active element and selected ones of said first plurality of electrically conductive members;

a second plurality of electrically conductive members positioned on said dielectric layer; and at least one electrically conductive via in said dielectric layer, said at least one of said second plurality of electrically conductive members in contact with said metal member not electrically coupled to said metallic traces.

3. The electronic package of claim 1, wherein said dielectric layer has a thickness of from 25 microns to 115 microns.

4. The electronic package of claim 1, wherein each of said plurality of metallic traces has a width of from 50 microns to 260 microns.

5. The electronic package of claim 1, wherein said second plurality of electrically conductive members is positioned on said dielectric layer peripherally to said first plurality of electrically conductive members.

6. The electronic package of claim 1, further including a mother board positioned on said first and said second plurality of electrically conductive members, said mother board including a ground plane.

7. The electronic package of claim 6, wherein said ground plane is electrically coupled to said metal member.

8. The electronic package of claim 7, wherein said metal member comprises an electromagnetic shield for said active element.

12. The electronic package of claim 1, wherein the photo-imageable dielectric material undergoes a chemical change and polymerizes when exposed to light, so as to become non-soluble to a developer solution.

REMARKS

Claims 1, 3-8, and 12 are currently pending,

The Examiner rejected claims 1, 3-8 and 12 under 35 U.S.C. §103(a) as being unpatentable over the combination of Vendramin (5955789), Marrs (5583378) and Datta (6046429).

Applicants respectfully traverse the 35 U.S.C. §103 rejections with the following arguments.

35 U.S.C. §103

As to claim 1 the Examiner alleges that “[a]t column 1, lines 2-24 and 36-39; and column 3, line 50 to column 4, line 61, Vendramin teaches ... an electronic package comprising: a metal member 405; a dielectric layer [‘organic laminate’] positioned on said metal member, wherein said dielectric layer comprises a dielectric material; an active element 401 positioned on said dielectric layer; a first plurality of electrically conductive members 305 positioned on said dielectric layer relative to said active element; a second plurality of electrically conductive members 303 positioned on said dielectric layer; and at least one electrically conductive via 301 in said dielectric layer, said at least one of said second plurality of electrically conductive members in contact with said metal member not electrically coupled to said metallic traces.... However, Vendramin does not appear to explicitly teach a plurality of metallic traces on said dielectric layer, selected ones of said metallic traces in electrical contact with said active element and selected ones of said first plurality of electrically conductive members.... Nonetheless, at column 12, lines 7-64; column 13, lines 14-45; and column 13, line 65 to column 14, line 1, Marrs teaches a plurality of metallic traces 438 on a dielectric layer 406, selected ones of the metallic traces in electrical contact with an active element 402 and selected ones of a first plurality of electrically conductive members 418. Moreover, it would have been obvious to combine the process of Marrs with the process of Vendramin because it would provide active electrical connections.”

In first arguments relating to claim 1, in reference to Vendramin and Marrs, Applicants contend that it would not be obvious to combine the electrical connections of Marrs with the process of Vendramin to provide electrical connections in Applicants’ disclosure because the

Vendramin invention already has electrical connections. Applicants disagree with the Examiner's allegation that "proper motivation has been provided to combine the products Mars and Vendramin," since the Examiner has not persuasively explained why one of ordinary skill in the art would be motivated to use Marrs' metallic traces with Vendramin's disclosed apparatus considering that Vendramin's disclosed apparatus has no need of Marrs' metallic traces and would not be improved by using Marrs' metallic traces.

Based on the preceding first arguments, Applicants respectfully maintain that claim 1 is not unpatentable over Vendramin and Marrs, and that claim 1 is in condition for allowance. Since claims 3-8 and 12 depend from claim 1, Applicants contend that claims 3-8 and 12 are likewise in condition for allowance.

The Examiner alleges that "[i]n addition, it is noted that the resulting combination of the applied prior art teaches the element positioned on the dielectric layer as disclosed in the instant Figures 4 and 4A. "Vendramin also does not appear to explicitly teach wherein the dielectric layer comprises a photo-imageable dielectric material Nevertheless, at column 1, lines 18-36 column 2, lines 24-47; and column 3, lines 8-12, Datta teaches a process wherein a dielectric layer comprises a permanent photo-imageable dielectric material wherein the photo-imageable dielectric material inherently undergoes a chemical change and polymerizes when exposed to light, so as to become non-soluble to a developer solution. In fact, the material of Datta is the same material as that of applicant's preferred embodiment disclosed in the instant specification at page 9, lines 1-4. Furthermore, it would have been obvious to combine the process of Datta with the process of the applied prior art because it would provide an organic laminate."

In second arguments relating to claim 1, in reference to Vendramin and Datta, Applicants respectfully maintain that it would not be obvious to combine the Vendramin invention with the photo-imageable dielectric material used in Datta because, the primary reference, Vendramin does not suggest any reason for using a photo-imageable material. One reason that Applicants use the photo-imageable dielectric material is to reduce the overall thickness of the dielectric material, thereby reducing the thickness of the electronic package. Reducing the thickness of the dielectric material is disclosed in the specification on page 8, lines 9-24. Applications such as PCMCIA, PDA, GPS, and GSP that require a thin electronic package are disclosed in the specification on page 5, lines 24-29 and page 6, lines 1-10. Another benefit to reducing the thickness of the dielectric material is to reduce impedance of the electronic package. Reducing the impedance of the electronic package is disclosed in the specification on page 11, lines 10-29 and page 12, lines 1-2. Vendremin, the primary reference, does not teach or suggest any reason for reducing the overall thickness of the dielectric material. Likewise Vendremin does not even discuss reducing the impedance of an electronic structure or any other design consideration that is suggestive of a need to use a photo-imageable dielectric material. The preceding examples illustrate motivations for having a photo-imageable dielectric material that Vendremin does not teach. There could, of course, be other motivations for having a photo-imageable dielectric materia; however, no such other motivations exist in Vendramin, and the Examiner has not cited anything disclosed by Vendramin that would suggest that use of a photo-imageable dielectric material would be desirable in Vendramin.

In addition, the Examiner alleged that “it would have been obvious to combine the process of Datta with the process of the applied prior art because it would provide an organic

laminate.” In response, Applicants respectfully point out that being photo-imageable is not a necessary condition for a laminate to be an organic laminate, inasmuch as an organic laminate could comprise dielectric material that is non-photoimageable with no photo-imageable dielectric material present. Accordingly, the rejection of claim 1 is improper, because the Examiner’s stated reason for combining Datta with Vendramin is based on faulty logic.

Based on the preceding second arguments, Applicants respectfully maintain that claim 1 is not unpatentable over Vendramin in view of Datta, and that claim 1 is in condition for allowance. Since claims 3-8 and 12 depend from claim 1, Applicants contend that claims 3-8 and 12 are likewise in condition for allowance.

In third arguments relating to claim 1, Applicants contend that Vendramin cannot be used as prior art in rejecting claims of the present patent application under 35 U.S.C. 103, because:

1) Vendramin cannot be prior art under former 35 U.S.C. 103 via 35 U.S.C. 102(b), because the present patent application was filed on August 14, 2000 which is less than one year following the issue date of September 21, 1999 of the Vendramin patent;

2) Vendramin cannot be prior art under former 35 U.S.C. 103 via 35 U.S.C. 102(a), because a reference under 35 U.S.C. 102(a) cannot be a disclosure of an Applicant’s own work, and Giuseppe Vendramin **is an inventor relating to the present patent application** and is an inventor relating to the Vendramin patent 5,955,789;

3) Vendramin cannot be used as prior art in rejecting claims of the present patent application if the Vendramin patent is being considered by the Examiner as prior art under former 35 U.S.C. 103 via 35 U.S.C. 102(e), because “[e]ffective November 29, 1999, subject

matter which was prior art under former 35 U.S.C. 103 via 35 U.S.C. 102(e) is now disqualified as prior art against the claimed invention if that subject matter and the claimed invention ‘were, at the time the invention was made, owned by the same person or subject to assignment by the same person’” (See MPEP 706.02(1)(1)) considering that: (a) the present patent was filed on August 14, 2000 which is after November 29, 1999 and (b) both the subject matter of the Vendramin patent and the claimed invention of the present patent application were, at the time the invention was made, owned by International Business Machines Corporation or subject to assignment by International Business Machines Corporation; and

4) Vendramin cannot be prior art under former 35 U.S.C. 103 via 35 U.S.C. 102(e), because 35 U.S.C. 102(e) requires that the invention of the prior art reference was described in a patent granted on an application for patent **by another** filed in the United States before the invention by the applicant, and Gluseppe Vendramin is an inventor relating to the present patent application and is an inventor relating to the Vendramin patent 5,955,789, so that the Vendramin reference is not a patent granted on an application for patent **by another**.

Based on the preceding third arguments, Applicants respectfully maintain that claim 1 is not unpatentable over Vendramin because Vendramin cannot be used as a prior art reference, and that claim 1 is in condition for allowance. Since claims 3-8 and 12 depend from claim 1, Applicants contend that claims 3-8 and 12 are likewise in condition for allowance.

CONCLUSION

Based on the preceding arguments, Applicants respectfully contend claims 1, 3-8, and 12 are in condition for allowance. If the Examiner believes that anything further is necessary in

order to place the application in better condition for allowance, the Examiner is requested to contact Applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,



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